

Statewide Rail Capacity and System Needs Study Interim Report

presented to
**Washington State
Transportation Commission**

presented by
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Washington State
Transportation Commission



Agenda

- **Executive Summary**
- **Introduction**
- **Overview of the Rail System and Issues**
- **A Closer Look at Washington Rail Markets: Service Issues and Needs**
- **Policy Issues**
- **Next Steps**

Executive Summary

What Is the Purpose of the Study?

- **Legislative mandate is “assess the rail freight and rail passenger infrastructure needs in this State ...[and] recommend public policies for state participation and ownership in rail infrastructure and service delivery, including but not limited to planning and governance issues...”**

What Are the Key Policy Questions?

- **What are the freight rail infrastructure and service needs of the State?**
 - **Who are rail freight users and service providers?**
 - **What do users need from the system? What do service providers need from the system?**
- **What are the passenger rail infrastructure and service needs of the state?**
 - **Who are passenger rail users and service providers?**
 - **What do the users need from the system? What do the service providers need from the system?**
- **What are the key infrastructure, operational and institutional obstacles to meeting the States rail needs?**

What Are the Key Policy Questions? *(continued)*

- **What is the State's role and interest in the rail system and under what powers and authorities does it operate to accomplish this?**
 - **Improve passenger and freight mobility**
 - **Ensure state and regional economic competitiveness including international trade functions**
 - **Ensure cost-effective transportation options for key economic sectors**
 - **Minimize environmental, safety, and community disruption impacts of rail**
 - **What are existing powers and authorities?**
 - **How have investments/actions to date supported these interests?**

What Are the Key Policy Questions? *(continued)*

- **What should the state's policies be for participation and ownership in rail infrastructure and service delivery, rail planning and rail governance structures?**
 - **What should policies be with respect to ownership/management of assets and delivery of services?**
 - **How should the state determine when and when not to invest in rail?**
 - **What should policies be with respect to other forms of financial assistance?**
 - **What policies should the state adopt to ensure protection of community interests?**
 - **What should policies be with respect to supporting economic development through rail investment?**

What Are the Key Policy Questions? *(continued)*

- What should policies be with respect to advocacy on behalf of Washington State rail shippers, ports, and communities?
 - What should the policies be with respect to rail planning?
 - What should the policies be with respect to the governance structure for rail programs?
-
- What are the key elements of a statewide rail asset management plan?

What Are the State's Concerns About Rail Transportation?

- The **passenger rail program** requires major investment to achieve desired service levels and ridership
- **Trade growth** is swamping the freight-rail system, reducing service levels for passenger rail and Washington state shippers and receivers
- **Short line railroads** are struggling financially; service failures would affect businesses and communities, especially in eastern Washington State
- **Communities** want rail access to encourage economic development, but are concerned about land use and environmental impacts

What Is the Study Process?

- **Phase I – State of the System**
 - Define key **issues and opportunities** (May)
- **Phase II – Policy Rationale and Analytical Approach**
 - Develop **policy packages** and evaluation tools (August)
- **Phase III – Policies, Investment Plan, Asset Management Plan**
 - Make **recommendations** (December)
- **This report summarizes the findings and conclusions of Phase I**

What Are the Phase I Study Findings and Conclusions?

- **Washington State rail network is at or near capacity; service quality is strained and rates are going up**
 - Capacity problems result from both inadequate infrastructure and inefficient operating practices
- **Freight demand is growing, but much of the growth is driven by shippers and receivers outside Washington State**
- **RR industry is not keeping pace with demand**
 - Infrastructure expansion is focused on Pacific Southwest and coal lines out of Powder River Basin; RR investment in PSW may relieve some pressure on PNW

What Are the Phase I Study Findings and Conclusions? *(continued)*

- **Class I RRs' business model is changing, emphasizing –**
 - **Operational approaches to increase velocity (throughput capacity)**
 - **Logistics parks, transload centers, and grain consolidation facilities for more profitable “hook and haul” service**
 - **Pricing to turn aside lower-profit traffic; this is happening nationwide**
 - **Intermodal traffic is squeezing out carload traffic**
 - **International traffic is squeezing out domestic intermodal traffic**

What Are the Phase I Study Findings and Conclusions? *(continued)*

- **The transition will find some stakeholders on the losing end (e.g., local industries that are low-volume shippers and receivers of carloads, small grain-elevator operators, etc.)**
- **State and local governments may see increased highway costs from additional truck traffic**
- **Short line share of the national carload market has experienced high growth, but some short lines in the State are poorly positioned in current business climate**

What Are the Phase I Study Findings and Conclusions? *(continued)*

- **International trade growth will continue to dominate rail traffic; rail connections will be critical to port competitiveness**
- **Passenger ridership growth is capped by current capacity; passenger rail will continue to compete for access to capacity on strained Washington State rail network**

What Are Potential Policy Options and System Improvement Strategies for Phase II Study?

- **Support economic growth and competitiveness**
 - Incentives for operational improvements that improve throughput capacity (velocity)
 - Financial incentives for mainline capacity improvements, especially operational improvements, based on system-level analysis
 - Selective cooperative investment in port access and terminal capacity to meet throughput needs
 - Assistance to Class I's in identification, acquisition, permitting, and highway access to new intermodal terminals and transload centers
 - Selective investment and financial support for branchline and short line systems providing access to industrial customers
 - Expedited permitting procedures for priority bottlenecks and strategic capacity expansion

What Are Potential Policy Options ... for Phase II Study? *(continued)*

● Support local economic development

- Financial support/incentives to develop transload centers and short line collection/feeder systems
 - Made through local economic development/port districts
 - Include requirement for local support
 - Demonstrate effective business model

● Sustain communities

- Development of regional freight rail districts to provide support or ownership of short line services
- Grants/loans to short line operators
- Support for equipment pools

What Are Potential Policy Options ... for Phase II Study? *(continued)*

- **Cost-effectively improve passenger mobility**
 - **Better coordinated operations to maximize use of existing capacity**
 - **Focused investment to eliminate high-priority bottlenecks in shared freight/passenger corridors**
 - **Clear policy for allocation of costs based on allocation of benefits**
 - **Purchase of new right of way or leasing of passenger-exclusive right-of-way within existing freight rail corridors to separate passenger/freight operations**

What Are Potential Policy Options ... for Phase II Study? *(continued)*

- **Minimize community impacts**
 - **Dedicated funding source to support grade separations**
 - **Require consideration of environmental and road maintenance impacts associated with traffic diversion in decisions to support rail investment**
 - **Multistate ombudsman function for negotiating conflicts with rail industry**

What Are the Next Steps for the Study?

- **Develop strategic packages**
 - Policy
 - Improvement strategy
 - Project
- **Develop analytical methodology for evaluating costs/benefits/risks**
- **Identify alternative governance and management structures**
- **Develop investment plan, asset management plan, and ongoing rail policy forum**

Reader's Guide

- **Executive Summary ... p. 2**

- **Introduction (legislative mandate, state concerns, study process) ... p. 20**
- **Washington State Rail System (network map, railroads, national connections, capacity, major bottlenecks, investments) ... p. 27**
- **Rail Users (commodities, industries, economic forecasts, freight demand, business environment, needs) ... p. 34**
 - **Freight Rail Shippers/Receivers ... p. 36**
 - **Class I Railroads ... p. 50**
 - **Short Line Railroad ... p. 55**
 - **Ports ... p. 58**
 - **Passenger Rail ... p. 60**
- **Key Findings and Conclusions... p. 66**

- **A Closer Look at Washington State Rail Markets: Service Issues and Needs ... p. 71**
 - **Merchandise trade and retail sector ... p. 73**
 - **Agriculture and food products sector ... p. 82**
 - **Manufacturing and industrial products sector (including lumber and wood) ... p. 91**
 - **Passenger sector ... p. 97**

- **Key Policy Questions for the State ... p. 102**
- **Potential Policy Options and System Improvement Strategies for Phase II Study ... p. 107**

- **Next Steps for the Study... p. 111**

Introduction

What Is the Purpose of the Study?

“...The Purpose of this study is to

- (a) assess the rail freight and rail passenger infrastructure needs in this State;***
- (b) review the current powers, authorities, and interests the State has in both passenger and freight rail;***
- (c) recommend public policies for state participation and ownership in rail infrastructure and service delivery, including but not limited to planning and governance issues; and***
- (d) develop a rail asset management plan.”***

What Are the State's Concerns About Rail Transportation?

- The **passenger rail** program requires major investment to achieve desired service levels and ridership
 - Is this cost-effective?
 - Are there benefits to freight rail? Can they be quantified?
 - How should costs be allocated between passenger and freight rail?
- **Trade growth** is swamping the freight-rail system, reducing service levels for passenger rail and Washington state shippers and receivers
 - What is the State's role in ensuring a healthy port/rail system?
 - What is the impact on local shippers and receivers?
 - What is the impact on passenger rail?

What Are the State's Concerns About Rail Transportation? *(continued)*

- **Short line railroads** are struggling financially
 - Should the State support short line railroads in Eastern Washington to sustain local businesses and communities?
- **Communities** want rail access to encourage economic development, but are concerned about land use and environmental impacts
 - What is appropriate state role and policy on the expansion of rail services for economic development?
 - What should the State do to reduce rail impacts such as noise, diesel fumes, and traffic delays at rail crossings?

What Is the Study Process?

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 - Make **recommendations** (December)

What Is the Purpose of This Interim Report?

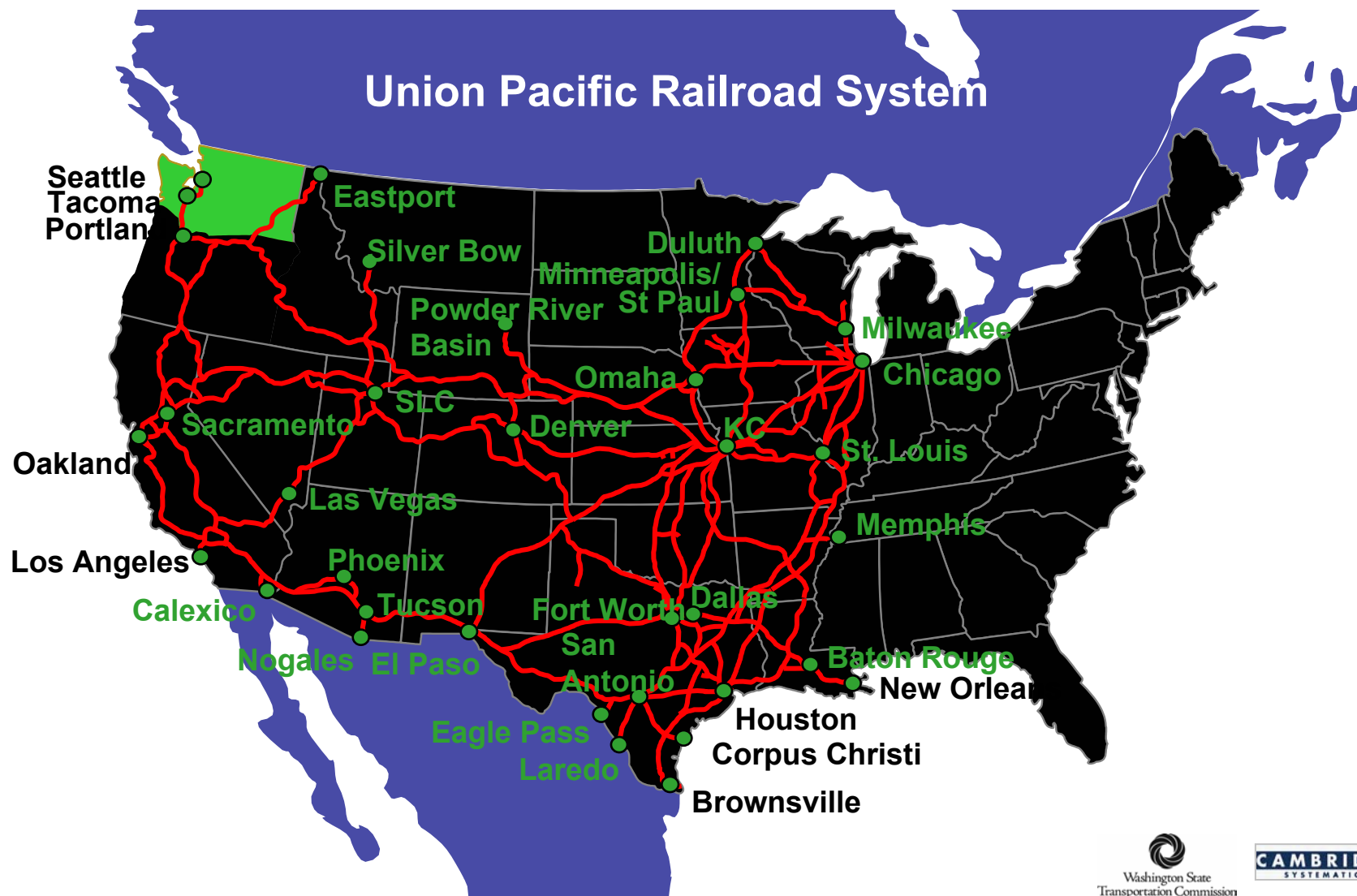
- This report summarizes the **findings and conclusions of Phase I**, answering the questions:
 - What is the Washington rail system and how is it integrated with the national rail network?
 - Who are the rail system users? What is their role in the economy? What are their needs and issues?
 - Who are the railroads (Class I, short line, passenger)? What services do they provide and what is their business environment? What are their needs and issues?
 - Does the State have sufficient rail capacity to meet future needs? What are the most critical infrastructure, operational, and institutional bottlenecks?

Overview of Washington Rail System Network, Users, and Carriers

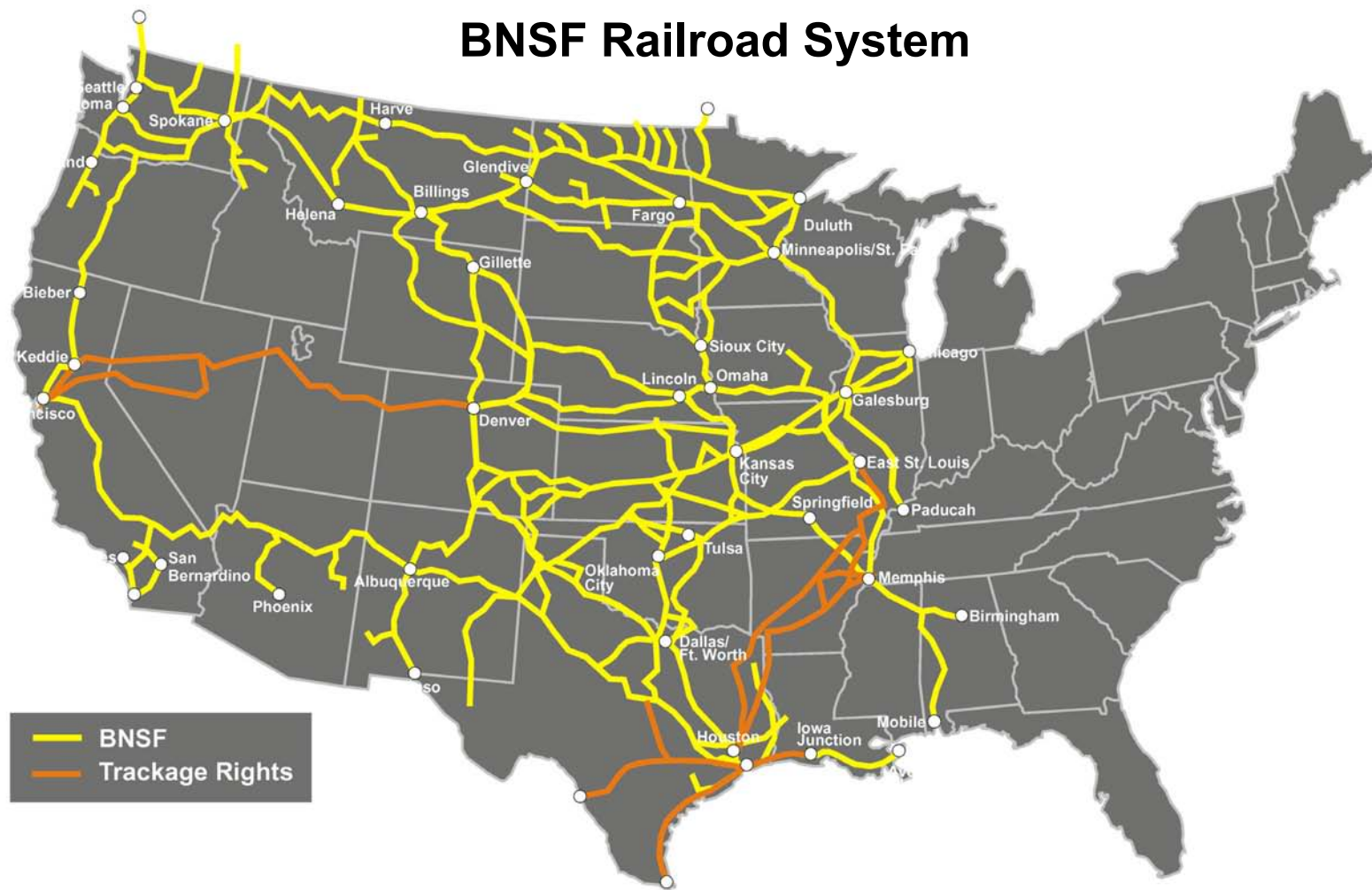
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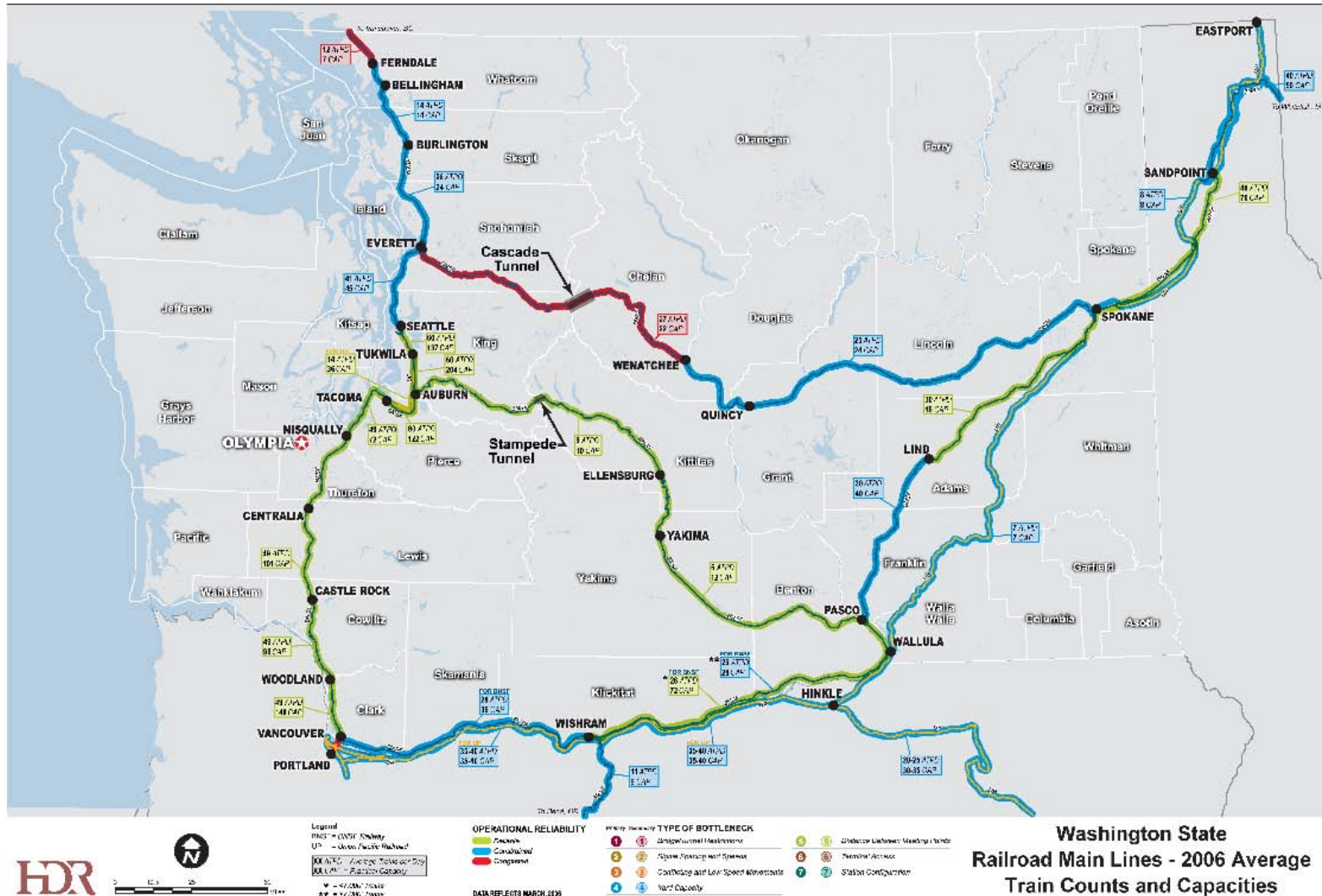
How Does It Connect to the National Rail System?



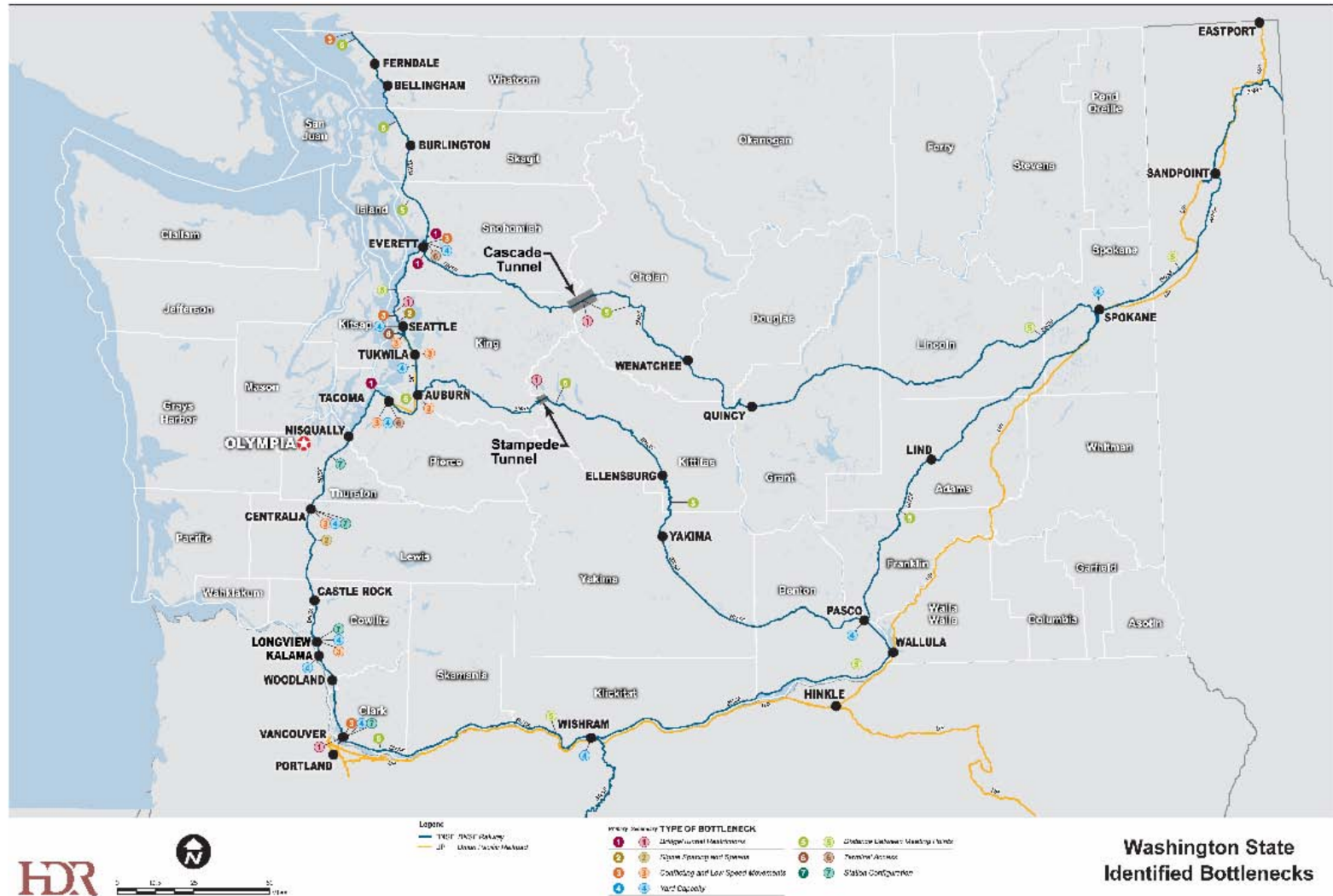
How Does It Connect to the National Rail System? *(continued)*



What Is the Capacity of the Washington State Rail Network Today?



What Are the Major Bottlenecks in the Washington State Rail Network Today?



How Much Has the Public Sector Invested in the Rail Network?

● Infrastructure projects funded since 1993

• WSDOT	\$77,226,447
• Amtrak	\$30,800,000
• FRA High Speed Program	\$6,884,400
• Sound Transit	\$336,100,000
• ODOT (Portland - Vancouver)	\$24,500,000
• Total	\$476 million

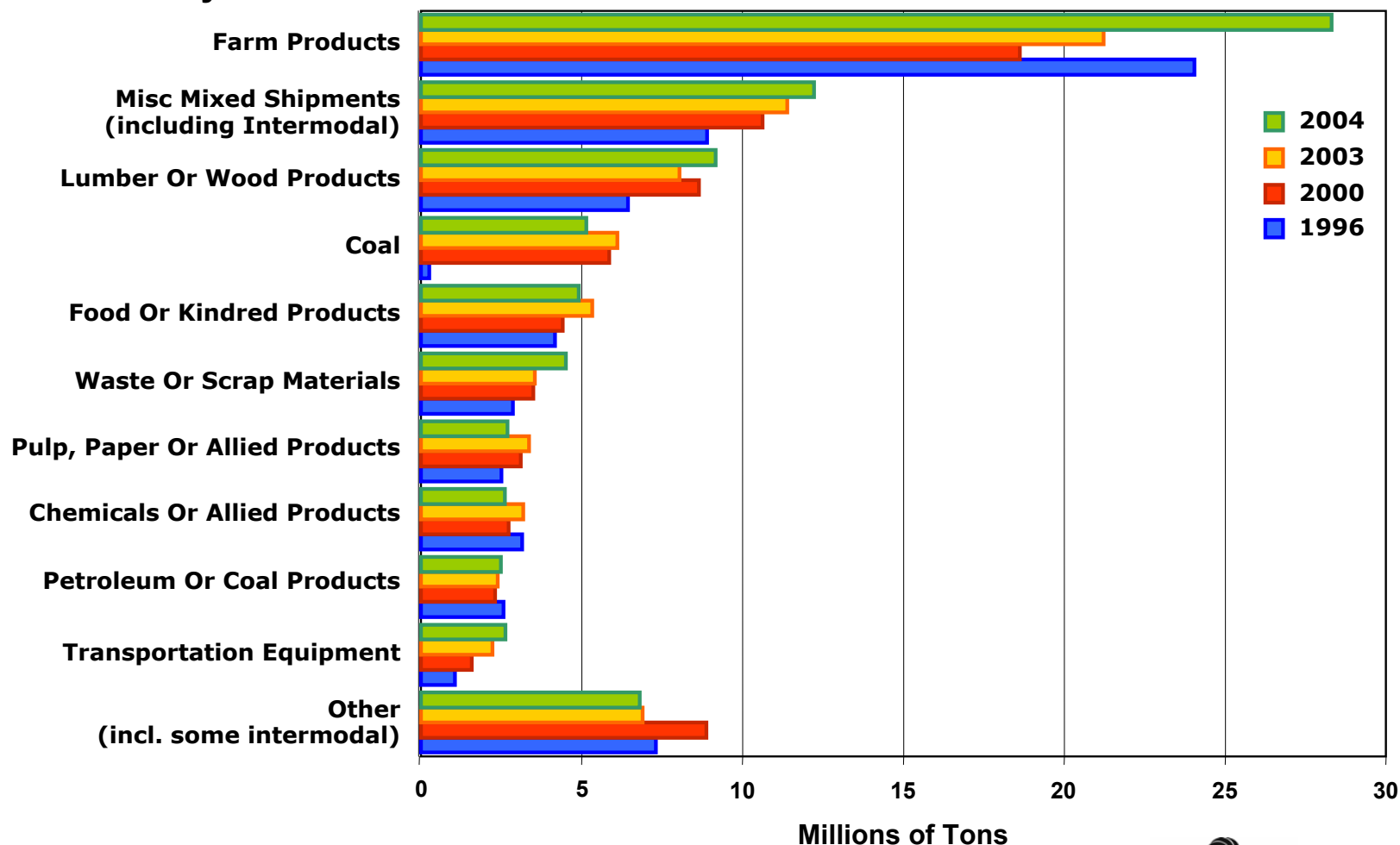
How Is the Public Sector Investing in the Rail Network?

Currently funded passenger-rail related projects

- Ruston Waycrossovers \$3,382,000
 - Titlow crossovers \$3,970,000
 - Swift \$6,000,000
 - Mt. Vernon \$2,470,000
 - Stanwood siding \$3,000,000
 - Delta Yard \$14,000,000
 - Pt. Defiance Bypass \$59,584,000
 - Centennial crossovers \$3,875,000
 - Tenino crossovers \$3,875,000
 - Winlock crossovers \$3,925,000
 - KMB \$53,068,000
 - Vancouver \$109,950,000
 - Colebrook (Amtrak) \$2,000,000
 - Chuckanut Relay (Amtrak) \$2,000,000
 - Centralia steam plant loop \$3,000,000
- Total \$274 million of the Cascades service area passenger program of \$750 million

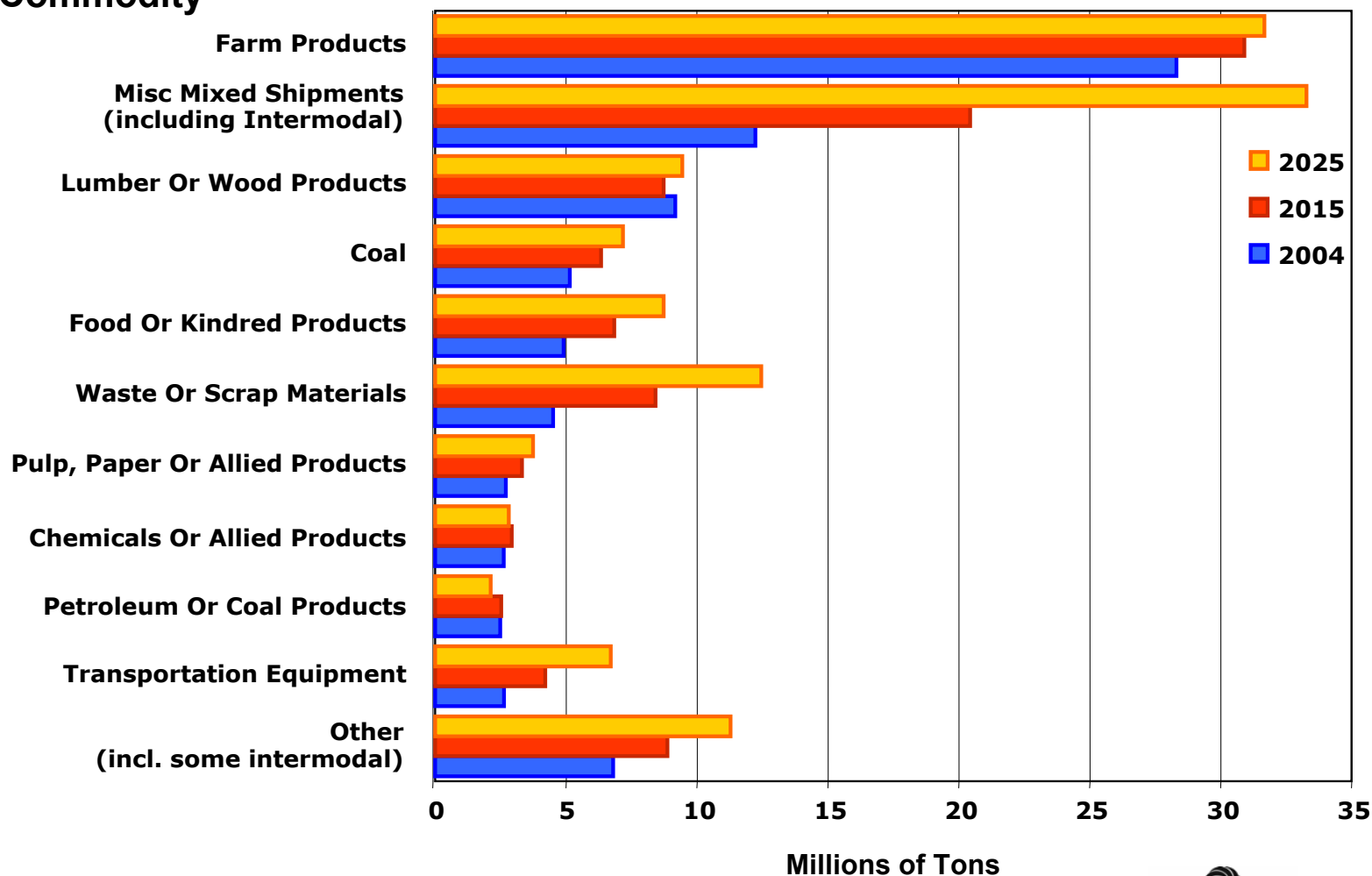
What Commodities Have Moved Over the Rail Network Historically?

Total Rail Tonnage Moving Into, Within, Out of, or Through Washington State, by Commodity



What Commodities Will Move Over the Rail Network in the Future?

Total Rail Tonnage Moving Into, Within, Out of, or Through Washington State, by Commodity



Who Ships These Commodities?

- **Merchandise trade and retail industries** use the rail system to import merchandise and consumer products from Asia
- **Agriculture and food products industries** use the rail system to export grain, farm products, and processed food products to U.S. and global markets
- **Manufacturing and industrial products industries** use rail to move primary manufactured products, chemicals, coal, petroleum products, etc. between Washington State and U.S. and NAFTA markets

Who Ships These Commodities? *(continued)*

- **Lumber and wood products industries** use rail to ship lumber and building products to U.S. markets
- **Residents and tourists** use the intercity and commuter rail service to travel the I-5 corridor and travel between Washington State, Chicago, and intermediate points

What Is the Business Environment for Shippers?

- **U.S. industries are shifting toward value-added production and services**
- **Shippers are exporting less heavy, bulky commodities and more high-value products**
- **Businesses are specializing geographically to exploit comparative advantages**
- **Shippers are sourcing and marketing globally**

What Are the Supply Chain Needs of Shippers?

● Extraction industry

- **Allegheny Coal, Monsanto, FMC, Cargill, Mosaic... have few sites, use a lot of heavy equipment, and operate in commodity businesses**
- **Supply-chain needs: High asset utilization and low unit cost transportation**

● Process manufacturing industry

- **BASF, Cabot, Air Products, DuPont, Gallo... have few sites, use a lot of specialized equipment, and operate continuous production facilities**
- **Supply-chain needs: Low unit cost transportation and reliability of delivery (service)**

What Are the Supply Chain Needs of Shippers?

(continued)

● Make-to-stock industry

- GM, CNH, GE Power Systems, Georgia Pacific Building Products... have many sites, lots of in and out product flows, and use as much labor as machinery and equipment
- Supply-chain needs: Reliability of delivery (service)

● Make-to-order industry

- Boeing, Northrop Grumman, Bechtel, Raytheon... have few sites, limited in and out product flows, and are technologically advanced
- Supply-chain needs: Reliability of delivery (service) and speed of delivery (quality)

What Are the Supply Chain Needs of Shippers?

(continued)

● Distribution industry

- Arrow Electronics, W.W. Grainger, Dresser, UPS... have many small nodes, lots of in and out product flows each in small quantities, and use a lot of vehicles
- Supply-chain needs: Reliability of delivery (service) and speed of delivery (quality)

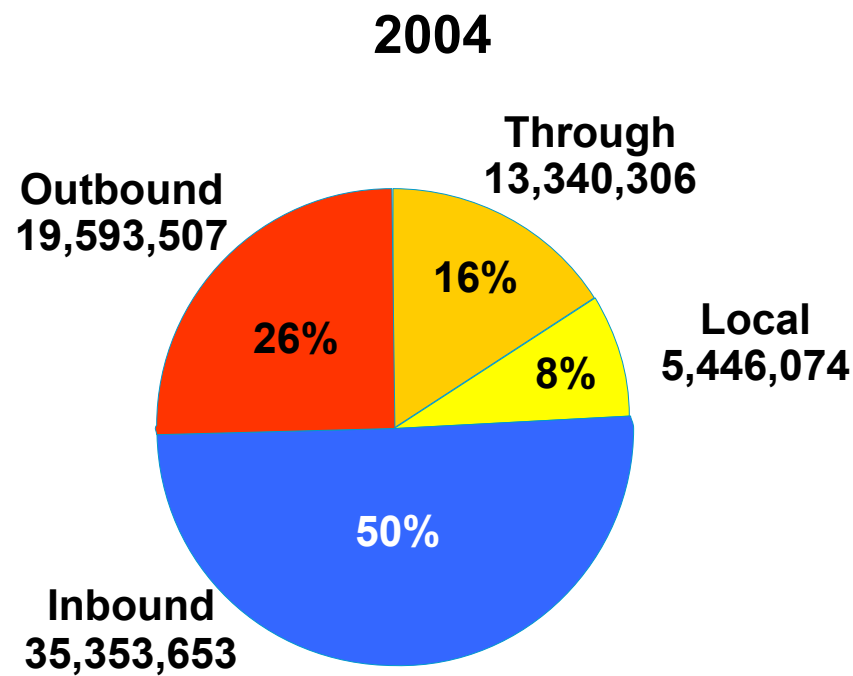
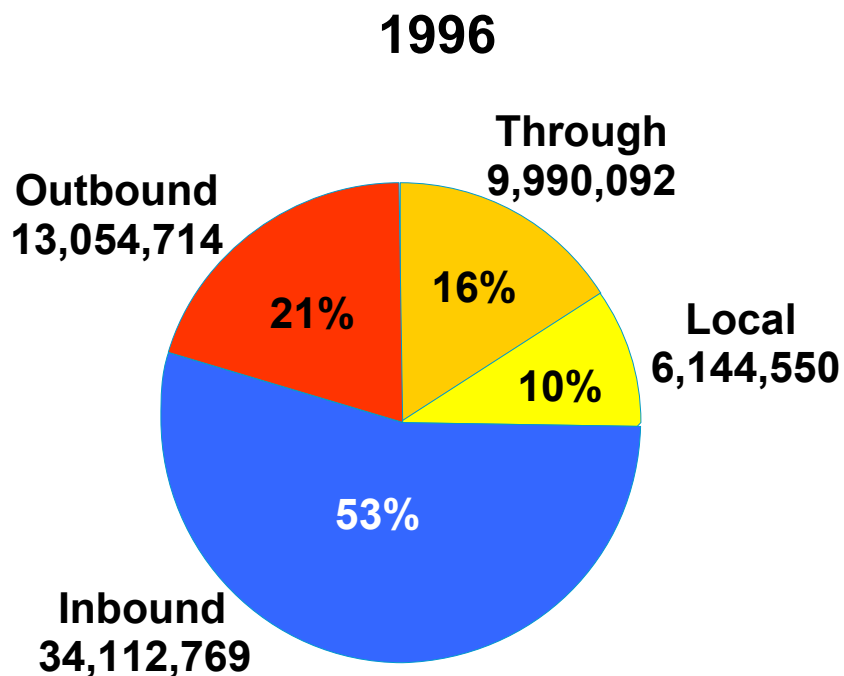
● Re-selling industry

- L.L. Bean, Dell, Gateway, Wal-Mart, Sears... have large number of ship-to points, lots of in and out product flows each in small quantities, and contract out freight to carriers
- Supply-chain needs: Transportation flexibility, agility, and ability to change product mix rapidly

How Are Supply Chains Changing?

- **Make-to-order, distribution, and re-selling industries are continuing their shift toward “time-certain delivery” and “on-demand” operations, pulling the extraction, process manufacturing, and “make-to-stock” industries with them**
- **Shipment sizes are smaller; shipments are more frequent**
- **Reliability and visibility are critical**
- **Shippers are using more trucking, but using long-haul rail to take advantage of low cost intermodal service where it is reliable**
- **Importers are diversifying their use of ports “just in case”**

How Do Shippers Use the Washington Rail Network?



Inbound = Tonnage of rail shipments terminating in Washington State

Outbound = Tonnage of rail shipments originating from Washington State

Through = Tonnage of shipment passing through Washington State

Local = Tonnage of rail shipments originating and terminating in Washington State

How Do Shippers Use the Washington Rail Network? *(continued)*

- **International exporters of grain from the Midwest through Washington ports accounted for one-half of all rail tonnage (traffic inbound to WA)**
- **International importers of merchandise in containers from Asia accounted for one-quarter of all rail tonnage; more than 60 percent were shipped east from Washington (traffic outbound from WA); volume has increased significantly since 1996; generates high numbers of cars and trains because merchandise is relatively light**
- **Canadian shippers moving lumber and wood products to U.S. markets accounted for 16 percent of rail tonnage (through traffic); volumes have also increased since 1996**

How Do Washington State Shippers Use the Washington Rail Network?

- **Local, intrastate rail tonnage declined from 6.1 million tons (10 percent of all rail tonnage in WA) in 1996 to 5.5 million tons (8 percent) in 2004**
- **Class I railroads still see industrial products market from Washington businesses as a strong growth market, but managing the small carload business is a challenge**
 - **Businesses will be encouraged to do more consolidation and transloading, site improvements, and manage their own car supply; will generate more and longer truck trips to railheads**
 - **Management of carload shipments by the lumber and wood products industry is often cited as a success by the railroads, but shippers complain about deteriorating service**

How Do Washington State Shippers Use the Washington Rail Network? *(continued)*

- **Agricultural producers and storage facilities still look to rail as an effective link to export ports**
 - **Short line performance with low track maintenance may preclude this option in many cases**
 - **There is pressure from Class I's to convert to unit train business model**
 - **Small grain loaders and short lines serving them are the most vulnerable component of this system**

What Is the Economic Outlook for Washington State Freight-Rail Shippers?

Washington State Gross State Product Growth by Sector, 2000 to 2025

	Compound Annual Percentage Growth					
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2000-2025
Total Washington State GSP	2.5	3.7	3.4	3.5	3.3	3.3
Agriculture	0.0	0.2	-0.2	-0.6	-1.0	-0.3
Manufacturing	-0.9	0.4	0.1	-0.2	-0.6	-0.2
Mining	-2.4	0.5	-0.2	-0.7	-1.1	-0.8
Construction	-0.2	2.5	2.0	1.7	1.2	1.4
Trade, Transportation & Utilities	3.7	2.9	2.4	2.1	1.7	2.6
Information	2.0	8.9	8.1	8.0	7.0	6.8
Financial Activities	3.5	3.0	2.5	2.1	1.6	2.5
Prof. & Business Services	4.0	6.2	5.6	5.6	5.0	5.3
Education & Health Services	3.8	5.2	4.6	4.5	4.1	4.4
Leisure & Hospitality	2.5	4.0	3.7	3.6	3.1	3.4
Other Services	2.6	3.2	2.7	2.1	1.7	2.5
State & Local Govt.	1.6	1.9	1.6	1.0	0.6	1.3
Federal Govt.	3.6	0.4	-0.3	-0.6	-1.2	0.4

How Important Are Washington State Freight-Rail Shippers to the State's Economy?

- One-third of Washington State jobs is in industries that use freight-rail

Employment by Industry	1995	2005
Merchandise Trade and Retail	468,400	531,700
Agriculture and Food	111,598	119,981
Manufacturing	311,300	272,000
Lumber and Wood Products	45,400	37,700
Total	936,698	961,381
Total as a Percentage of Washington State Jobs	39.9%	34.6%

What Are the Rail Issues for Washington State Freight-Rail Shippers?

- **Shippers are concerned about rate hikes and declines in service quality**
- **Smaller Washington State shippers, captive shippers (shippers served by only one railroad), and short lines are especially concerned about changes**
- **Complaints about lack of equipment (e.g., locomotive power and cars) are frequent**
- **Larger shippers are spreading their traffic to other West Coast ports (and some East Coast ports) in response to PNW railroad service problems**

What Is the Business Environment for the Class I Railroads?

- **BNSF dominates many markets in WA and the PNW; its business strategy emphasizes intermodal traffic**
- **UP has 19.1 million tons of freight originating or terminating in WA; its business strategy is to grow the carload manifest; will discontinue domestic intermodal service from Seattle unless a new intermodal site can be found**
- **The railroads share trackage between Tacoma and Portland (UP and Amtrak trains run on BNSF lines)**

What Is the Business Environment for the Class I Railroads? *(continued)*

- **Current Class I RRs' business models emphasize high-density, long-haul movements (“hook and haul”), where volume and economies of scale keep service profitable**
 - **High-density intermodal container movements from ports (e.g., Los Angeles/Long Beach to Chicago)**
 - **Unit grain trains to Pacific Northwest and Gulf ports**
 - **Carload service to high-volume consolidation and transload centers**
- **Class I RRs continue to transfer low-density branch lines to short line railroads with lower operating costs**
- **Railroads face strong political pressure to maintain capacity, service, and price in energy markets**

What Is the Business Environment for the Class I Railroads? *(continued)*

- **1980 Staggers Act deregulated the railroad industry, triggering mergers and downsizing of firms and network**
- **Class I RRs held onto the mainlines, abandoning or selling off low-volume, low profit branches to short line railroads**
- **Class I RR productivity is up, rates are down, and volumes up moderately; revenues and profitability have grown slowly, accelerating only recently**
- **Class I RRs have not been able to expand mainline and terminal capacity fast enough to keep pace increasing demand**

How Do Class I Railroads Approach Capacity Expansion?

- **Increase “velocity” (throughput capacity)**
 - **Develop process improvements to increase effective capacity**
 - **Apply new technology (such as CTC) to improve operations**
 - **Buy new locomotives**
 - **Add more train crews**
 - **Buy more equipment (cars)**
 - **Build new infrastructure (yards, sidings, and track)**

What Are the Rail Issues for the Class I Railroads?

- **Railroads' major challenge is generating and attracting sufficient capital for investment**
 - Railroads have invested conservatively, not fully anticipating the current surge in demand
 - Railroads are profitable and growing; return on invested capital (ROIC) increasing, but there are constraints on their ability to invest enough private capital to keep pace with demand and public expectations
- **Unable to meet demand, Class I RRs are using pricing to turn aside lower-profit traffic; this is happening nationwide**
 - Intermodal traffic is squeezing out carload
 - International traffic is squeezing out domestic intermodal

What Is the Business Environment for the Short Line Railroads?

- **Carload market is growing with consolidation of ownership and some consolidation of low-density lines and collector/distributor functions**
- **Industry is a mix of profitable and marginal performers**
 - **Volume has a direct impact on track maintenance levels, speeds, and service**
 - **Class I RRs are setting market conditions – pricing and access**
 - **In very low-volume markets, short line service may not be competitive with trucking; fuel costs and state and local ability to maintain pavement on truck routes will be critical factors**

What Is the Business Environment for the Short Line Railroads? *(continued)*

- **Short lines perform critical function for local agriculture and industrial products shippers**
 - **Some short lines in WA are not meeting critical volume thresholds and services and investment in track and equipment is declining**

What Are the Rail Issues for the Short Line Railroads?

- **Short lines face high costs to upgrade track and bridges to carry newer, heavier-capacity (286K pounds) cars preferred by shippers and Class I RRs**
- **Railcar availability, which is partially controlled by the Class I RRs, is a continuing problem**
- **Short line traffic generates significant amount of Class I RR revenue (16 percent for BNSF), but joint rates are provided (or not) by the Class I RRs, depending on whether the Class I RRs want the traffic**
- **Short lines face competition from transload/consolidation facilities favored (or sponsored) by Class I RRs**

What Is the Business Environment for the Ports?

- **Container cargo growth projections through WA ports remain extremely high; combined volume will grow from 2.8 million TEU (2005) to 6.4 million TEU (2025)**
- **Competitive outlook has some uncertainty**
 - **Forecasts for Seattle/Tacoma adjusted down due to recoveries in Southern California; landside capacity investments, port productivity, and community issues will affect competition**
 - **New competition from Port of Vancouver (BC), Prince Rupert, and “all-water” service through Panama Canal**
- **Rail connections affect competitive position because of substantial volumes of discretionary long-haul cargo**

What Is the Business Environment for the Ports? *(continued)*

- **Ports face pressure to improve throughput, but challenged by**
 - **Waterfront gentrification and space limitations at Seattle**
 - **Rail access issues in Tacoma**
 - **Lack of space to accommodate both on-dock rail and container storage needs**
 - **Lack of rail terminal capacity**

What Are the Passenger Rail Services Using the Washington State Rail Network?

- **Amtrak intercity services are:**
 - **Cascades – 3 daily trips between Seattle and Portland (4 after July 1), 1 trip Seattle-Bellingham; and 1 trip Seattle-Bellingham-Vancouver**
 - **Coast Starlight – daily trip between Seattle and Los Angeles**
 - **Empire Builder – daily trip between Seattle and Spokane and between Portland and Spokane, with a connection to Chicago**
- **Sound Transit Sounder commuter services are:**
 - **Seattle and Tacoma – four trains each in AM and PM peak**
 - **Seattle and Everett – two trains each in AM and PM peak**
 - **Special event service to Seattle stadium events**

What Is the Ridership and Performance of the Amtrak Cascade Intercity Rail Service?

- Ridership on north-south Amtrak Cascades trains in western Washington has increased from 560K in 2001 to 637K in 2005 (about 14 percent)
 - Ridership increased by 300% since inception of service in the early 1990s

	2001	2002	2003	2004	2005	Change 2001-2005
Ridership, State Supported	359,327	379,001	385,585	398,121	420,920	+17.1%
Ridership, All Trains	560,381	584,346	589,743	603,059	636,892	+13.7%
On-Time Performance	76.3%	70.8%	71.9%	68.7%	60.1%	-21.2%
Farebox Recovery	41.7%	43.0%	39.9%	49.7%	47.3%	+13.6%

What Is the Ridership and Performance of the Amtrak Cascade Intercity Rail Service? *(continued)*

- **Ridership growth may be capped by current capacity; one or more trains have been sold out on 200 days during the calendar year**
- **On-time performance has deteriorated from 76 percent to 60 percent; Washington State segments do better than Portland and south segments**
- **Farebox recovery has grown from 42 percent to 47 percent, exceeding projections for current service levels**

What Is the Ridership and Performance of the Sounder Commuter Rail Service?

- Ridership has increased from 0.5 million in 2001 to 1.3 million in 2005 (156 percent)
- Farebox recovery has been stable at about 14 percent
- As trains have been added, ridership has increased dramatically

	2001	2002	2003	2004	2005	Change 2001-2005
Ridership	494,600	817,405	751,163	955,298	1,268,291	+156.4%
Farebox Recovery	N/A	13.1%	13.9%	14.1%	N/A	N/A

What Are the Rail Issues for Passenger Rail Providers?

- **The I-5 rail corridor needs significant additional investment to reach intercity service levels that will attract sufficient ridership to cover operating costs**
- **Allocation of the costs, benefits, and risks of shared capital and operating improvements between freight and passenger rail is not clear**
- **Ridership demand forecasts may need adjustment upward review if high fuel costs persist**
- **Capacity improvements must be fully coordinated to benefit passenger and freight rail**

What Are the Rail Issues for Washington State Communities?

- **Rail lines and terminals are heavy industry facilities**
 - Noise, air quality, and traffic impacts (e.g., at crossings as train lengths increase)
 - Conflicts as development occurs (e.g., Seattle waterfront, Kennewick mall development)
- **Streamlined permitting to increase capacity often conflicts with community demands for mitigation of impacts; federal regulations differ from state and local regulations**
- **Communities have limited access to railroad decision-makers for resolution of local issues**
- **Current Class I RR business models do not support carload rail service for local industry expansion**

Key Findings and Conclusions

- **Washington State rail network is at or near capacity; service quality is strained and rates are going up**
 - Capacity problems result from both inadequate infrastructure and inefficient operating practices
- **Freight demand is growing; much of the growth is driven by shippers and receivers outside of Washington State**
- **RR industry is not keeping pace with demand**
 - Class I RRs are emphasizing operational approaches to expand capacity and pricing to manage network demand
 - Infrastructure expansion is focused on Pacific Southwest and coal lines out of Powder River Basin; RR investment in PSW may relieve some pressure on PNW

Key Findings and Conclusions *(continued)*

- **Class I RRs' business model is changing, emphasizing –**
 - **Operational approaches to increase velocity (throughput capacity)**
 - **Logistics parks, transload centers, and grain consolidation facilities for more profitable “hook and haul” service**
 - **Pricing to turn aside lower-profit traffic; this is happening nationwide**
 - **Intermodal traffic is squeezing out carload traffic**
 - **International traffic is squeezing out domestic intermodal traffic**

Key Findings and Conclusions *(continued)*

- **The transition will find some stakeholders on the losing end (e.g., local industries that are low-volume shippers and receivers of carloads, small grain-elevator operators, etc.)**
- **State and local governments may see increased highway costs from additional truck traffic**
- **Short line share of the national carload market has experienced high growth, but some short lines in the State are poorly positioned in current business climate**

Key Findings and Conclusions *(continued)*

- **International trade growth will continue to dominate rail traffic and rail connections will be critical to port competitiveness**
- **Passenger ridership growth is capped by current capacity; passenger rail will continue to compete for access to capacity on strained Washington State rail network**
 - **Passenger rail program has funded many of the capacity improvements in the I-5 corridor**
 - **Class I RRs will value benefits of capacity improvements in shared corridors based on impacts of passenger operations on premium freight-rail services**

Key Findings and Conclusions *(continued)*

- **Passenger rail (continues)**
 - Properly coordinated improvements can benefit both passenger and freight railroads
 - High cost of fuel and highway construction will help maintain interest in passenger rail
- **Washington State rail policy must address**
 - Local industry, community, and congestion needs
 - Port access to serve Washington State and the nation;
 - National rail system capacity, which directly affects Washington State shippers, receivers, and ports

A Closer Look at Washington State Rail Markets: Service Issues and Needs

What is the Role of Rail in the Major Rail-Use Sectors?

- **There are four primary sectors that use the WA rail system**
 - **Merchandise trade and retail**
 - **Agriculture and food products**
 - **Manufacturing and industrial products (including lumber and wood)**
 - **Passenger**

Who Are the Merchandise Trade and Retail Sector Users of the WA Rail System and What Benefits do They Bring to the State?

- **Most merchandise trade and retail use of the WA rail system is intermodal cargo moving through the Ports of Seattle and Tacoma**
 - **Outbound intermodal traffic represents the largest growth share of freight rail demand**
- **Primary benefits of this traffic to WA State come from port-related jobs, income, and tax payments**
 - **Port of Tacoma generated 113,000 high paying, port-related jobs and \$91 million in state and local tax payments in 2005**
 - **Port of Seattle generated 34,500 port-related jobs, \$2.1 billion in wages and salaries, and \$210.8 million in state and local taxes in 2003**

What Are the Trends in International Trade?

- **China will grow as supplier and customer and Japan and South Korea will lose share**
 - Political disruptions or changes in protectionist trade policies could put this at risk
- **Trade through WA ports should grow from 2.8 million TEU (2005) to 6.4 million TEU (2025)**
 - Shifts back to Southern California and competition from Canadian ports could dampen prior forecasts
 - Current forecasts by BNSF suggest potential capacity shortfalls given current West Coast port buildout
 - Rail throughput will be critical to meeting demand

How Much Freight Does Merchandise Trade and Retail Sector Ship Today? In 2025?

	Merchandise Trade and Retail Sector Shipments, Tonnage by Mode		
	2004	2015	2025
Rail CL	1,441,645	2,126,731	2,651,737
Rail IMX	5,692,699	12,203,593	18,721,500
Truck	411,581	518,981	572,765
Water	2,380,810	3,017,750	3,577,904
Air	572	706	825
	CAGR '04-'15	CAGR '15-'25	CAGR '04-'25
Rail CL	3.6%	2.2%	2.9%
Rail IMX	7.2%	4.4%	5.8%
Truck	2.1%	1.0%	1.6%
Water	2.2%	1.7%	2.0%
Air	1.9%	1.6%	1.8%

What Are the Supply Chain Needs of the Merchandise Trade and Retail Sector?

- **Merchandise trade and retail sector primarily use distribution and re-selling supply chains**
 - **This sector uses global supply chains to reduce product unit costs**
 - **Flexibility/agility/ability to change in response to consumer demand is critical as key business drivers are zero stockout and rapid replenishment; velocity and reliability are also important**
 - **Port diversification strategies have favored Seattle and Tacoma, but competition is still fierce**
 - **Retailers have been positioning DCs near port gateways; port-to-port rates from ocean carriers favor transloading, but other trends suggest consolidation at foreign origins to avoid congestion in the U.S.**

What Is the Role of Rail in Merchandise Trade and Retail?

- **Merchandise trade and retail sector relies on rail intermodal for low cost line haul transportation**
 - **Premium services are growth market for railroads**
 - **Importers complain about rising costs, declining velocity, and unreliability of intermodal services from railroads; they will move load centers quickly and dramatically in response to poor performance and price hikes/incentives**

What Are the Rail Bottlenecks for Merchandise Trade?



Washington State
Intermodal Rail Routes and
Identified Bottlenecks

What Are the Rail Bottlenecks for Merchandise Trade? *(continued)*

- **There is insufficient capacity throughout the intermodal system to meet projected demand for service; in several corridors, current volumes near or at capacity**
- **There are a number of critical marine on-dock and off-dock terminal capacity constraints**
 - **UP Argo Yard operating at capacity (will discontinue domestic IMX service) – solution may be new yard in Kent Valley to serve transload customers**
 - **BNSF SIG Yard has at-grade crossing issues**
 - **POS T-18 has inefficient track configuration**
 - **POT is expanding but configuration of Tideflats terminal and yard tracks is a problem (Chilcote Junction, Bullfrog Junction)**

What Are the Rail Bottlenecks for Merchandise Trade? *(continued)*

- **Terminal access is also a key problem at ports**
 - Duwamish Corridor needs access improvements, joint operations, and grade separation of East Marginal Way
 - Mainline access to Bullfrog Junction needs to be reconfigured for both UP and BNSF
- **A number of main line capacity problems affect merchandise trade and retail sector**
 - Running times between sidings over Stevens Pass and short sidings at Lyons, Espanola and Edwall limit capacity; tunnel ventilation becomes a constraint if single-direction headways are reduced
 - Major alternative is south to Columbia River Gorge, but there are I-5 corridor capacity constraints and BNSF siding issues in the Gorge
 - Lack of doublestack clearance at Stampede Pass limits use

What Are the Issues for Washington State?

- **The merchandise trade system faces critical capacity shortage. What are state options?**
 - Port terminal/access or mainline capacity investment
 - Mainline operations and infrastructure improvements
 - No state role
- **Preserve jobs connected to Ports of Seattle and Tacoma and PNW distribution**
 - What is the Federal role given Pacific Rim trade needs?
- **Control cost of distribution in the PNW**
 - Focus on quality/quantity of rail service to interior U.S.

Who Is the Agricultural and Food Products Sector in WA and Who are WA Rail System Users?

- **WA is 11th largest producing state in the U.S./7th in crop sales (wheat and fruit)**
 - **WA is 5th largest wheat producer with yields per acre 50% higher than competitors – Eastern Washington is one of the most productive wheat regions in the U.S. – Rail plays a critical role in keeping costs down and providing cost competitive exports**
 - **Fruit (apples and pears) production is in Yakima and Wenatchee Valleys; one-fifth to one-third of production goes to exports, but markets very competitive**
 - **Most rail cargo is out-of-state grain exports that greatly affects the market for WA rail shippers**

Who Is the Agricultural and Food Products Sector in WA and Who are WA Rail System Users? *(continued)*

- **WA has strong processed food industry with particular strength in frozen foods**
- **Wine production in the Columbia Valley is a major new growth market in processed food**
- **Global Insight predicts declines in sales**
 - **Recent water agreements (a critical cost factor in Eastern Washington) could greatly impact these forecasts**
 - **Advances in bio-engineering and technologies for preserving and transporting agricultural and food products could also increase export volumes**

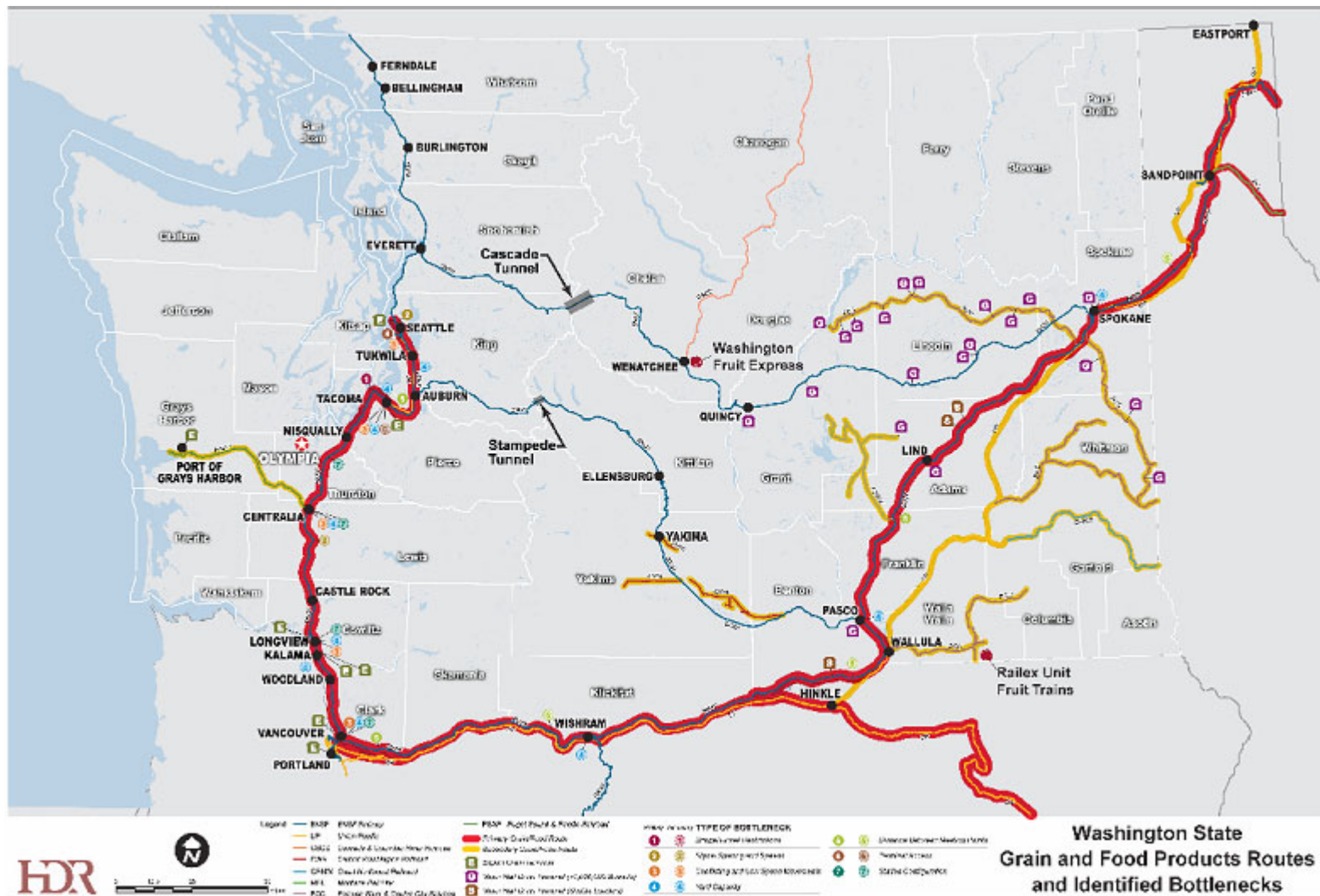
How Much Freight Does the Agricultural and Food Products Sector Ship Today? In 2025?

	Agriculture and Food Products Sector Shipments, Tonnage by Mode		
	2004	2015	2025
Rail CL	34,000,324	38,666,050	41,318,807
Rail IMX	364,075	466,687	533,750
Truck	57,113,874	74,103,242	91,058,893
Water	3,507,853	4,013,971	4,458,500
Air	143,754	168,608	191,584
	CAGR '04-'15	CAGR '15-'25	CAGR '04-'25
Rail CL	1.2%	0.7%	0.9%
Rail IMX	2.3%	1.4%	1.8%
Truck	2.4%	2.1%	2.2%
Water	1.2%	1.1%	1.1%
Air	1.5%	1.3%	1.4%

What Are the Supply Chain Needs of the Agricultural and Food Products Sector?

- **This sector uses extraction and process manufacturing supply chains**
 - **Asset utilization and low cost of transportation are critical performance needs**
 - **Ag producers move product through storage and handling facilities; drive to consolidation by railroads reduces costs in export, but threatens traditional distribution channels**
- **Rail plays an important/evolving role in ag supply chains**
 - **Unit grain trains are dominant – BNSF points to growth from 8% to 22% share of WA originating exports since opening of Ritzville loader**
 - **Short lines play major role in gathering and distribution; can they adapt to new consolidation business model?**

What Are the Rail Bottlenecks for the Agricultural and Food Products Sector?



What Are the Rail Bottlenecks for the Agricultural and Food Products Sector *(continued)*

- **Main line capacity constraints are problematic because there are limited alternative routes due to power needs over mountain passes.**
 - **Siding lengths between Pasco and Wishram limit train lengths or capacity**
 - **Siding spacing between Wishram and Vancouver limits capacity**
 - **Low speed operation, short yard tracks, and train crossings in Port of Vancouver/Vancouver Yard contribute to low throughput on the Seattle-Portland route**
 - **Access and loading/unloading capacity limit operations at Kalama/Longview**
 - **Short lead tracks at POS Cargill elevator limit capacity**
 - **Limited capacity between Wallula and Sandpoint (UP) limits operations**

What Are the Rail Bottlenecks for the Agricultural and Food Products Sector (continued)

- **Short lines have played a historically important role, but future viability of the system is at risk due to:**
 - **High operating costs and low speeds, often from deferred track maintenance before the Class I RRs sold off the lines**
 - **Poor service levels due to low and dispersed car volumes**
 - **Seasonal fluctuations in volumes impacting carrier efficiency**
 - **Low density operations that don't fit Class I unit train model**
 - **Competition for mainline capacity with higher revenue producing trains**

What Are the Rail Opportunities for the Agricultural and Food Products Sector *(continued)*

- **RailEx – point-to-point and unit train volumes**
- **Short line business and operations model that accumulates cars for delivery to the Class I RRs as a large block or unit train at new sub-terminals**

What Are the Issues for Washington State?

- **Current use of the Columbia River Gorge corridor for intermodal service (due to east-west capacity constraints) creates operational/capacity conflict on ag routes**
- **The changing Class I business model may impact the competitiveness of Washington agriculture**
 - **Would state support lead to transitional subsidies or long-term economic restructuring?**
 - **What is the impact of rationalizing grain collection system on small elevator operators?**
 - **Can economic incentives be provided to develop new point-to-point services (e.g., RailEx)?**
 - **Is public investment in rail or “farm to market” roads more cost-effective?**

Who are the Key Manufacturing and Industrial Products Industries and How do They Use the WA Rail System?

- **The key industry sectors using rail in WA include:**
 - **Lumber and wood products**
 - **Aerospace and transportation equipment**
 - **Chemical, petroleum, and coal products**
 - **Solid waste shippers**
 - **Military – Ft. Lewis**
- **Key trends affecting these sectors include:**
 - **Manufacturing expected to show growth in WA**
 - **Timber is declining**
 - **Secondary wood products still represents a growth market – increased housing starts particularly in Southwest**

How Much Freight Does Manufacturing and Industrial Products Ship Today? In 2025?

	Manufacturing Sector Shipments, Tonnage by Mode		
	2004	2015	2025
Rail CL	22,055,570	27,464,583	31,763,986
Rail IMX	968,993	1,141,191	1,287,847
Truck	127,537,415	165,385,205	211,315,473
Water	21,183,488	27,566,070	33,352,737
Air	531,830	761,797	1,237,047
	CAGR '04-'15	CAGR '15-'25	CAGR '04-'25
Rail CL	2.0%	1.5%	1.8%
Rail IMX	1.5%	1.2%	1.4%
Truck	2.4%	2.5%	2.4%
Water	2.4%	1.9%	2.2%
Air	3.3%	5.0%	4.1%

	Lumber and Wood Products Sector Shipments, Tonnage by Mode		
	2004	2015	2025
Rail CL	15,620,107	17,889,021	21,094,803
Rail IMX	206,510	129,776	95,056
Truck	63,943,258	59,960,596	61,666,824
Water	5,577,740	5,581,661	6,459,899
Air	2,956	3,693	4,511
	CAGR '04-'15	CAGR '15-'25	CAGR '04-'25
Rail CL	1.2%	1.7%	1.4%
Rail IMX	-4.1%	-3.1%	-3.6%
Truck	-0.6%	0.3%	0.2%
Water	0.0%	1.5%	0.7%
Air	2.0%	2.0%	2.0%

What Are the Supply Chain Needs of the Manufacturing and Industrial Products Sector?

- **Rail users in this sector are primarily in process manufacturing, make-to-stock, and make-to-order supply chains**
 - **Emphasize high asset utilization and low cost transportation**
 - **Equipment management a major challenge – high variety of car types, destination shifts (especially for wood products markets) makes it hard to get equipment when needed**

What Are the Rail Bottlenecks for the Manufacturing and Industrial Products Sector?



Washington State
Manufactured Goods Rail Lines
and Identified Bottlenecks

What Are the Rail Bottlenecks for the Manufacturing and Industrial Products Sector? *(continued)*

- **Railroad run longer trains at less frequent intervals creating yard capacity issues**
 - **Managing inventory in yards and in-transit is a growing challenge in the carload manifest market**
- **Railroads pushing customers to manage site configurations to reduce mainline impacts**
- **Small carload shippers have difficulty obtaining equipment, crews, power**
- **Capacity constraints on the main lines are similar to those of ag**

What Are the Issues for Washington State?

- **How can rail service best be preserved for captive shippers in strong industries**
 - **Financial assistance for off-mainline improvements?**
- **How should rail improvement costs be traded off against highway costs**
- **Can the State play a role in developing transload/consolidation facilities?**
- **Does development of more east-west capacity for intermodal traffic create more room for manifest traffic in Columbia River Gorge?**
- **Should the State own or provide financial assistance to acquire equipment?**

Who Is the Passenger Rail Sector?

- **Intercity passenger rail is provided by Amtrak with WSDOT funding**
 - **Current Amtrak (all trains) ridership is 636,892 (13.7% growth between 2001 and 2005)**
 - **Farebox recovery has grown from 42 percent to 47 percent, exceeding projections for current service levels**
 - **Most Amtrak usage is for vacation/recreation or to visit family and friends; business travel is 20-23% of ridership**
- **Commuter rail is provided by Sounder**
 - **Sounder ridership is 1,268,291, increasing with new services**
 - **On-time performance ranges from 93-96% (reported) to 80%**

What Are the Passenger Rail Service Issues?

(continued)

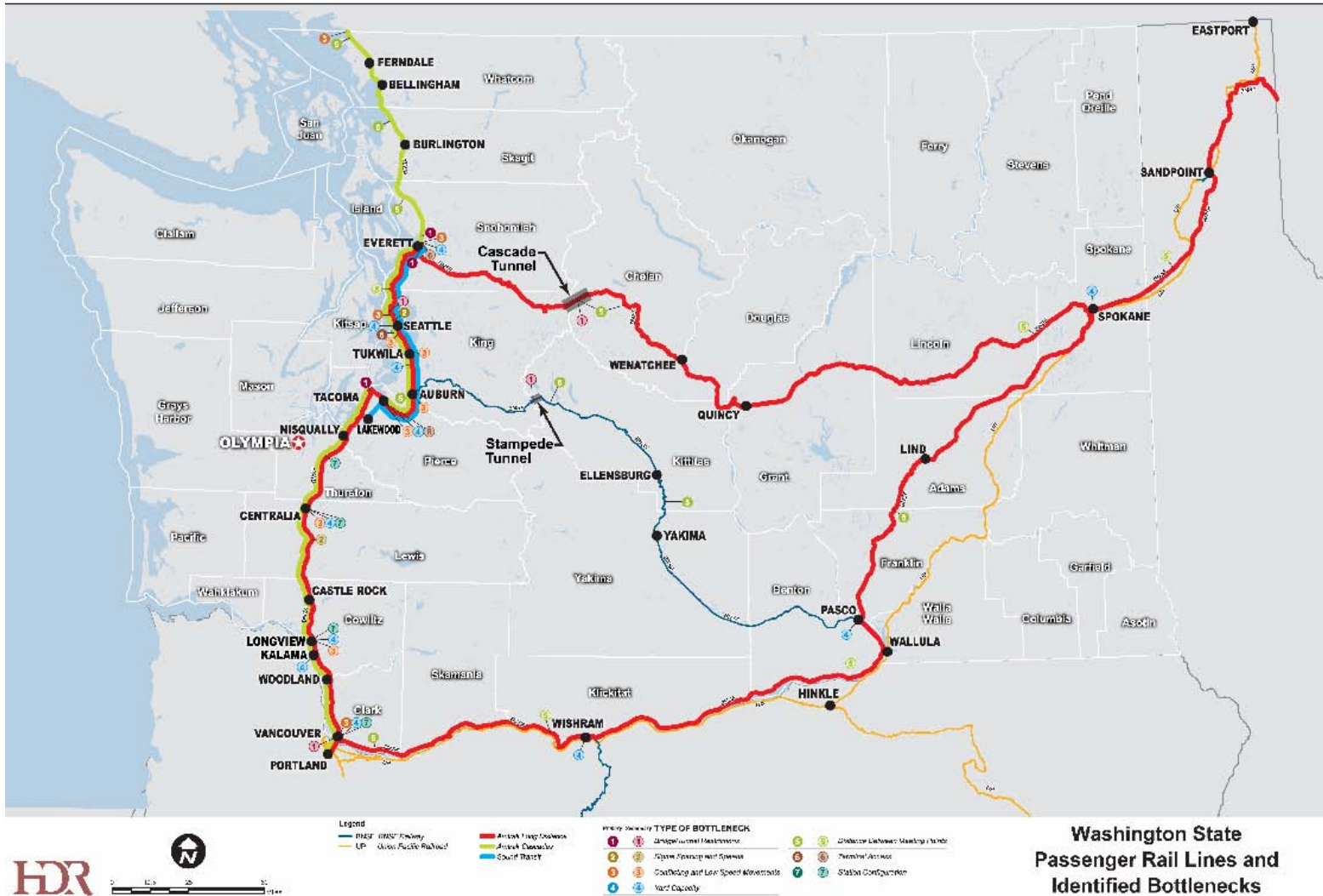
- **Amtrak Cascades ridership growth may be capped by capacity; one or more trains have been sold out on 200 days during the calendar year**
- **On-time performance has deteriorated from 76 percent to 60 percent; Washington State Amtrak Cascades segments do better than Portland and south segments**
- **Increases in congestion and fuel prices favor rail in comparison to auto in both intercity and commuter markets**
 - **Factors such as airport security and aging population also increase the attractiveness of rail travel**

What Are the Passenger Rail Service Issues?

(continued)

- **Ridership increases are contingent upon increases in trains and frequency; Amtrak Cascades ridership is forecast to increase to 3 million by 2023 if investments are made to:**
 - **Increase trains from 3 to 13 in each direction daily**
 - **Reduce time Seattle to Portland from 210 minutes to 150 minutes**

What Are the Rail Bottlenecks for Passenger Service?



What Are the Issues for Washington State?

- **Cost to reach critical performance/ridership levels on the intercity service is substantial so benefits must be clearly understood**
- **Allocation of benefits between passenger and freight rail in I-5 corridor is complex**
 - **Class I RRs increasingly focus on capacity needs for premium service and discount off-peak capacity added to system**
- **Subsidies to both highways and rail must be considered in assessing the cost-effectiveness of commuter and intercity rail in providing mobility and reducing highway congestion**

Policy Question and Initial Options

What Are the Key Policy Questions?

- **What are the freight rail infrastructure and service needs of the State?**
 - Who are rail freight users and service providers?
 - What do users need from the system? What do service providers need from the system?
- **What are the passenger rail infrastructure and service needs of the state?**
 - Who are passenger rail users and service providers?
 - What do the users need from the system? What do the service providers need from the system?
- **What are the key infrastructure, operational and institutional obstacles to meeting the States rail needs?**

What Are the Key Policy Questions? *(continued)*

- **What is the State's role and interest in the rail system and under what powers and authorities does it operate to accomplish this?**
 - **Improve passenger and freight mobility**
 - **Ensure state and regional economic competitiveness including international trade functions**
 - **Ensure cost-effective transportation options for key economic sectors**
 - **Minimize environmental, safety, and community disruption impacts of rail**
 - **What are existing powers and authorities?**
 - **How have investments/actions to date supported these interests?**

What Are the Key Policy Questions? *(continued)*

- **What should the state's policies be for participation and ownership in rail infrastructure and service delivery, rail planning and rail governance structures?**
 - **What should policies be with respect to ownership/management of assets and delivery of services?**
 - **How should the state determine when and when not to invest in rail?**
 - **What should policies be with respect to other forms of financial assistance?**
 - **What policies should the state adopt to ensure protection of community interests?**
 - **What should policies be with respect to supporting economic development through rail investment?**

What Are the Key Policy Questions? *(continued)*

- What should policies be with respect to advocacy on behalf of Washington State rail shippers, ports, and communities?
 - What should the policies be with respect to rail planning?
 - What should the policies be with respect to the governance structure for rail programs?
-
- What are the key elements of a statewide rail asset management plan?

What Are Potential Policy Options and System Improvement Strategies for Phase II Study?

- **Support economic growth and competitiveness**
 - Incentives for operational improvements that improve throughput capacity (velocity)
 - Financial incentives for mainline capacity improvements, especially operational improvements, based on system-level analysis
 - Selective cooperative investment in port access and terminal capacity to meet throughput needs
 - Assistance to Class I's in identification, acquisition, permitting, and highway access to new intermodal terminals and transload centers
 - Selective investment and financial support for branchline and short line systems providing access to industrial customers
 - Expedited permitting procedures for priority bottlenecks and strategic capacity expansion

What Are Potential Policy Options ... for Phase II Study? *(continued)*

● Support local economic development

- Financial support/incentives to develop transload centers and short line collection/feeder systems
 - Made through local economic development/port districts
 - Include requirement for local support
 - Demonstrate effective business model

● Sustain communities

- Development of regional freight rail districts to provide support or ownership of short line services
- Grants/loans to short line operators
- Support for equipment pools

What Are Potential Policy Options ... for Phase II Study? *(continued)*

- **Cost-effectively improve passenger mobility**
 - **Better coordinated operations to maximize use of existing capacity**
 - **Focused investment to eliminate high-priority bottlenecks in shared freight/passenger corridors**
 - **Clear policy for allocation of costs based on allocation of benefits**
 - **Purchase of new right of way or leasing of passenger-exclusive right-of-way within existing freight rail corridors to separate passenger/freight operations**

What Are Potential Policy Options ... for Phase II Study? *(continued)*

● Minimize community impacts

- Dedicated funding source to support grade separations
- Require consideration of environmental and road maintenance impacts associated with traffic diversion in decisions to support rail investment
- Multistate ombudsman function for negotiating conflicts with rail industry

What Are the Next Steps for the Study?

- **Develop strategic packages**
 - Policy
 - Improvement strategy
 - Project
- **Develop analytical methodology for evaluating costs/benefits/risks**
- **Identify alternative governance and management structures**
- **Develop investment plan, asset management plan, and ongoing rail policy forum**

Statewide Rail Capacity and System Needs Study Interim Report

presented to
**Washington State
Transportation Commission**

presented by
**Cambridge Systematics, Inc.
Berk & Associates, Inc.
Global Insight, Inc.
HDR, Inc.
Starboard Alliance Company
Transit Safety Management
Willard F. Keeney & Associates**

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Washington State
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